

(c) *Filler connection.* Each coolant tank filler connection must be marked as specified in § 23.1557(c). In addition—

(1) Spilled coolant must be prevented from entering the coolant tank compartment or any part of the airplane other than the tank itself; and

(2) Each recessed coolant filler connection must have a drain that discharges clear of the entire airplane.

(d) *Lines and fittings.* Each coolant system line and fitting must meet the requirements of § 23.993, except that the inside diameter of the engine coolant inlet and outlet lines may not be less than the diameter of the corresponding engine inlet and outlet connections.

(e) *Radiators.* Each coolant radiator must be able to withstand any vibration, inertia, and coolant pressure load to which it may normally be subjected. In addition—

(1) Each radiator must be supported to allow expansion due to operating temperatures and prevent the transmittal of harmful vibration to the radiator; and

(2) If flammable coolant is used, the air intake duct to the coolant radiator must be located so that (in case of fire) flames from the nacelle cannot strike the radiator.

(f) *Drains.* There must be an accessible drain that—

(1) Drains the entire cooling system (including the coolant tank, radiator, and the engine) when the airplane is in the normal ground altitude;

(2) Discharges clear of the entire airplane; and

(3) Has means to positively lock it closed.

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#### § 23.1063 Coolant tank tests.

Each coolant tank must be tested under § 23.965, except that—

(a) The test required by § 23.965(a)(1) must be replaced with a similar test using the sum of the pressure developed during the maximum ultimate acceleration with a full tank or a pressure of 3.5 pounds per square inch, whichever is greater, plus the maximum working pressure of the system; and

(b) For a tank with a nonmetallic liner the test fluid must be coolant rather than fuel as specified in § 23.965(d), and the slosh test on a specimen liner must be conducted with the coolant at operating temperature.

#### INDUCTION SYSTEM

#### § 23.1091 Air induction system.

(a) The air induction system for each engine and auxiliary power unit and their accessories must supply the air required by that engine and auxiliary power unit and their accessories under the operating conditions for which certification is requested.

(b) Each reciprocating engine installation must have at least two separate air intake sources and must meet the following:

(1) Primary air intakes may open within the cowlings if that part of the cowlings is isolated from the engine accessory section by a fire-resistant diaphragm or if there are means to prevent the emergence of backfire flames.

(2) Each alternate air intake must be located in a sheltered position and may not open within the cowlings if the emergence of backfire flames will result in a hazard.

(3) The supplying of air to the engine through the alternate air intake system may not result in a loss of excessive power in addition to the power loss due to the rise in air temperature.

(4) Each automatic alternate air door must have an override means accessible to the flight crew.

(5) Each automatic alternate air door must have a means to indicate to the flight crew when it is not closed.

(c) For turbine engine powered airplanes—

(1) There must be means to prevent hazardous quantities of fuel leakage or overflow from drains, vents, or other components of flammable fluid systems from entering the engine intake system; and

(2) The airplane must be designed to prevent water or slush on the runway, taxiway, or other airport operating surfaces from being directed into the engine or auxiliary power unit air intake ducts in hazardous quantities. The air intake ducts must be located or protected so as to minimize the hazard